**Biographical Sketch**

**Dr. Marc R. Nyden**

Business Address: National Institute of Standards and Technology
100 Bureau Dr., Stop 8652
Gaithersburg, Maryland 20899
(301) 975-6692
marc.nyden@nist.gov

Education:
**B.S**. Chemistry, University of Bridgeport, Bridgeport, CT, 1975
**Ph. D**. Physical Chemistry, Wesleyan University, Middletown, CT, 1980.
Postdoctoral Quantum Chemistry, University of North Carolina, Chapel Hill, NC, 1980-1982

Appointments:
Research Chemist, National Institute of Standards and Technology, Gaithersburg, MD, 1986-
Assistant Professor, University of Michigan – Flint, Flint, MI, 1986

Honors and awards:
Building and Fire Research Laboratory Communication Award, 1992
United States Department of Commerce Bronze Medal Award, 1993

Academic Affiliations:
Adjunct Professor
Chemistry and Physics Department
The Foundation for Advanced
Education in the Sciences
Bethesda, MD 20814-1460

Five Most Relevant Publications

"Molecular Dynamics Simulations of the Thermal Degradation of Nano-Confined Polypropylene," Marc R. Nyden and Jeffrey W. Gilman, Computational and Theoretical Polymer Science, **7**, 191 (1997).

"Halon Thermochemistry: Ab Initio Calculations of the Enthalpies of Formation of Fluoroethanes," R.J. Berry, C.J. Ehlers, D.R.F. Burgess, Jr., M.R. Zachariah, M.R. Nyden and M. Schwartz, J. Molec. Struct. (Theochem), **422**, 89 (1998).

"Observation of Resonances Associated with Stereo and Regio Defects in the Crystalline Regions of Isotactic Polypropylene: Towards a determination of Morphological Partitioning," D.L. VanderHart, Rufina.G. Alamo, Marc R. Nyden, H.-H. Kim, and L. Mandelkern, Macromolecules, **33**, 6078, (2000).

"Morphological Partitioning of Ethylene Defects in Random Propylene-Ethylene Copolymers," Rufina G. Alamo, D.L. VanderHart, Marc R. Nyden, and L. Mandelkern, Macromolecules, **33**, 6094, (2000).

"The Conformational Structures of Defect-Containing Chains in the Crystalline Regions of Isotactic Polypropylene," Marc R. Nyden, D.L. VanderHart, and Rufina G. Alamo, Journal of Computational and Theoretical Polymer Science, **11**, 175, (2001).

Five Other Significant Publications

"Complete Basis Set Correlation Energies. I. The Asymptotic Convergence of Pair Natural Orbital Expansions," Marc R. Nyden and G. A. Petersson, J. Chem Phys. **75**, 1843 (1981).

"Molecular Modeling of Polymer Flammability: Application to the Design of Flame-Resistant Polyethylene," Marc R. Nyden, Glenn P Forney and James E. Brown, Macromolecules, **25**, 1658 (1992).

"Real-Time Measurements of Condensed Phase Spectra in Burning Polymers," Marc R. Nyden, Appl. Spectrosc., **53** 1653 (1999).

"The Molecular Level Design of Fire Retardants and Suppressants," Marc R. Nyden, In: Fire Retardancy of Polymeric Materials, Arthur F. Grand and Charles A. Wilkie, Ed., Marcel Dekker Publishing Company, New York, (2000).

"Development of a Continuous Flow Flame Test Extruder for High-Throughput Formulation and Screening of New Fire Retardants," Marc R. Nyden and Jeffrey W. Gilman, Fire Retardant Chemical Association Spring 2000 Conference, March 12-15, 2000, Washington DC, 2000.

Students Supervised

**Ph.D.** P. Vallikul, Department of Mechanical Engineering, George Washington University, 1995.
**B.S.** Robert T. Baum, Department of Applied Physics, Rennselaer University, 1994-1997.

List of Scientists Collaborated with during Last 48 Months

Professor Rufina Alamo, Florida Agricultural and Mechanical University, Florida State University
Dr. Stanislav Stolariov, University of Massachusetts-Amherst
Dr. David Vanderhart, National Institute of Standards and Technology
Professor Phillip Westmoreland, University of Massachusetts-Amherst
Dr. R.J. Berry, Wright Laboratory, Wright-Patterson AFB

## *Thesis Advisor of M.R. Nyden*

**Ph.D.** (1980). Professor George Petersson, Wesleyan University, Middletown, CT

Postdoctoral Advisor of M.R. Nyden

(1980-1982). Professor (Emeritus) Robert G. Parr, University of North Carolina, Chapel Hill, NC